

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
-----				
		115FM21		
SHEAR PLATE ASSEMBLY ITEM 115 (PIVOTED, PLANAR) ----- SV778540-56 (1)  OR (ORU) ----- SV824133-8 (1)	2/1RB	Fracture of one of ten screws which mount the shear plate to the PLSS water tank structure.  Screw overstress or fatigue.	END ITEM: Fracture of one of ten screws mounting the shear plate assembly (with attached SOP) to the PLSS water tank structure.  GFE INTERFACE: Redistribution of loads to remaining nine screws. If two of the ten attachment screws fracture, the shear plate assembly (with attached SOP) detaches from the PLSS water tank structure.  MISSION: None for single screw failure. Loss of use of EMU with loss of two screws. Shear plate assembly and SOP assembly detaches from PLSS water tank structure.  CREW/VEHICLE: None for single failure. Possible crew jeopardy due to airlock damage with the failure of two screws.	A. Design - The shear plate to water tank structural interface consists of ten number ten screws and two number four screws. With the SOP fastened to the shear plate, the shear plate/SOP assembly becomes a rigid box structure. Thw worst case stress occurs due to loading in the head to toe axis of the EMU, during a 4.0g landing. The stress in the shear plat around the number four screw results in a 0.99 factor of safety on yield. Minimal local yielding occurs nearest to the number four screw for worst case launch loads with all screws intact, but does not cause subsequent failure of the PLSS. Loss of the two highest stressed number ten screws would allow overstressing of the shear plate, resulting in the detachment of the SOP and shear plate from the PLSS during landing.  B. Test - PDA Test - A fit check with an AAP is performed per SEMU-60-010.  Certification Test - Certified for a useful life of 20 years from the date of manufacture. Successful refurbishment will extend useful life to 30 years max. (Ref. EMUM1-0491, EMUM1-0027).  C. Inspection - Torque requirements for the screws that attach the shear plate assembly to the PLSS have mandatory inspection points. Details are 100% inspected per drawing dimensions and surface finish characteristics. Details are manufactured from material with certified physical and chemical properties.  D. Failure History - None.  E. Ground Turnaround - None.  F. Operational Use - Crew Response - Launch/entry: No response possible. Training - No training specifically covers this failure mode. Operational Considerations - Not applicable. EVA - N/A

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
--------------------	------	-----------------------------	----------------	--------------------------

115FM21

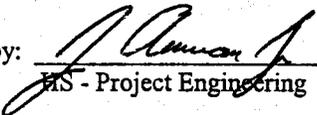
TIME TO EFFECT  
/ACTIONS:  
Seconds.

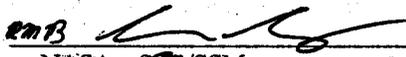
TIME  
AVAILABLE:  
Days.

TIME REQUIRED:  
N/A

REDUNDANCY  
SCREENS:  
A-PASS  
B-FAIL  
C-PASS

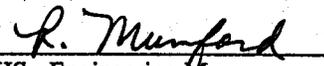
EXTRAVEHICULAR MOBILITY UNIT  
SYSTEMS SAFETY REVIEW PANEL REVIEW  
FOR THE  
I-115 SHEAR PLATE ASSEMBLY  
CRITICAL ITEM LIST (CIL)  
EMU CONTRACT NO. NAS 9-97150

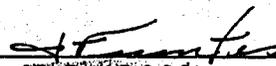
Prepared by:   
HS - Project Engineering

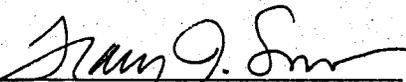
Approved by:   
NASA - SSA/SSM  
LSS

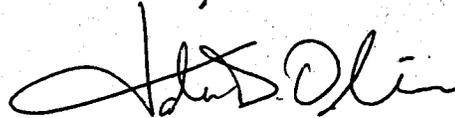
  
HS - Reliability

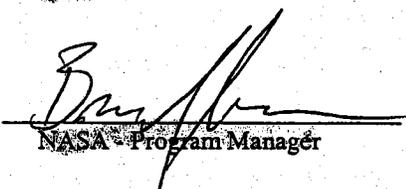
  
NASA - SSA/SSM

  
HS - Engineering Manager

  
NASA - S & MA

  
NASA - MOD

  
NASA - Crew

  
NASA - Program Manager